Abstract

Background: The tumor necrosis factor alpha (TNF-α) gene codes a cell signaling protein (cytokine) which is involved in systemic inflammation and is one of the cytokines that make up the acute phase reaction. The association of this gene polymorphisms on male fertility status is controversial.

Objective: The aim of the study was to evaluate the effect of -308 polymorphism of TNF-α gene on some parameters of sperms and semen in Iranian infertile men.

Materials and Methods: 210 men with infertility (Asthenospermia, oligospermia, oligoasthenospermia) and 120 control participants we enrolled in this case-control study. Polymorphism evaluation was done by sequencing method. We detected stress oxidative (Malondialdehyde) index in men with -308 polymorphism of TNF-α gene.

Results: We observed a significant high frequency of A allele of this polymorphism among oligoasthenospermia men )P=0.01(. In semen samples of men with AA genotype, there was a significantly high level of Malondialdehyde(P≤0.0001). Evaluating the effect of AA genotype in TNFα -308 polymorphism on different sperm parameters showed that this genotype had a significant effect on decreasing of sperm count (P≤0.0001), motility (P≤0.0001), and morphology (P≤0.0001).

Conclusion: It is concluded that there is a significant association between AA genotype of -308 TNF-α gene polymorphism with decreased sperm parameters as well as increased seminal oxidative stress in infertile men.

Keywords: Male infertility, TNF-α polymorphism, stress oxidative.